EUROPEAN STANDARD

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EUROPÄISCHE NORM

DRAFT

EN 12975-1

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Descriptors:

English version

Thermal solar systems and components
Solar Collectors
Part 1: General requirements

Installations solaires thermiques et leurs composants – Capteurs – Partie 1: Exigences générales

Thermische Solaranlagen und ihre Bauteile – Kollektoren – Teil 1: Allgemeine Anforderungen

This draft European Standard is submitted to the CEN members for Formal Vote. It has been drawn up by Technical Committee CEN/TC 312

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Czech Republic, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung
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Internal editor committee comments:

This editable version of the standard was received from Vassiliki Drosou (VD) on 091107 after first attempting to get it from Mr. Ladas and from SIS.

VD remarked that these doc's are as they were sent in to CMC (final drafts), however we must consider that some changes might be occurred from CMC. A brief check (By Peter Kovacs) gave the result that pagination differs quite a lot, the forewords are different but apart from this, no major differences were found.

Draft has been revised to comply with Mandate 369.

Contents

FOREWORD

This European Standard has been prepared by Technical Committee CEN/TC 312 "Thermal solar systems and components", the secretariat of which is held by ELOT.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by April 2001.

The annexes A, B, C and D are informative.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).
For relationship with EU Directive(s), see informative Annex ZA which is integral parts of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

INTRODUCTION

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard, it is pointed out that:

a) This standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;

b) It should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 SCOPE

This European Standard specifies requirements on durability (including mechanical strength), reliability and safety for liquid heating solar collectors. It also includes provisions for evaluation of conformity to these requirements.

It is not applicable to those collectors in which the thermal storage unit is an integral part of the collector to such an extent, that the collection process cannot be separated from the storage process for the purpose of making measurements of these two processes. It is not applicable to tracking concentrating solar collectors.

Collectors that are custom-built (built in, roof integrated collectors that do not comprise factory made modules and are assembled directly on the place of installation) cannot be tested in their actual form for durability, reliability and thermal performance according to this standard. Instead, a module with the same structure as the ready collector is tested. The module gross area in the case of custom built collectors shall be at least $2m^2$. The test is valid only for larger collectors, than the tested module.

For collectors the national and European Guidelines for Structural Planning and overhead glazing are not valid. Therefore this standard has to be applied for the design of the static of the collector.

2 NORMATIVE REFERENCES

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 9488	Solar Energy - Vocabulary (ISO 9488:1999)
EN 12975-2	Thermal solar systems and components – Solar collectors – Part 2: Test methods
EN 13501-1	Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests
EN 13501-5	Fire classification of construction products and building elements — Part 5: Classification using test data from external fire exposure to roof tests
EN 1027	Windows and doors . Watertightness . Test method

3 TERMS AND DEFINITIONS

For the purposes of this standard the terms and definitions given in EN ISO 9488 apply.

4 SYMBOLS AND UNITS

For the purposes of this standard the symbols and units given in EN ISO 9488 and EN 12975-2 apply.

5 DURABILITY AND RELIABILITY

5.1 MATERIALS AND DESIGN

Information about the materials and manufacture of solar collectors, including the materials they are manufactured of and their resistance to all influences which they might meet in service, retaining their operational ability are given in Annex A.

5.2 REQUIRED TESTS

The collector shall be subjected to the following series of tests:

a) Internal pressure for absorber (see 5.2 of EN 12975-2);

b) High temperature resistance (see 5.3 of EN 12975-2);

c) Exposure (see 5.4 of EN 12975-2);

d) External thermal shock. May be combined with the high temperature resistance or exposure test (see 5.5 of EN 12975-2);

e) Internal thermal shock. May be combined with the high temperature resistance or exposure test (see 5.6 of EN 12975-2);

f) Rain penetration, only for glazed collectors (see 5.7 of EN 12975-2);

g) Mechanical load (see 5.9 of EN 12975-2);

h) Thermal performance (see clause 6 of EN 12975-2);

i) Freeze resistance, only in the cases specified in 5.8 of EN 12975-2);

j) Stagnation temperature (see Annex C of EN 12975-2). May be combined with the high temperature resistance or exposure test.

k) Final inspection (see 5.11 of EN 12975-2).

The optional test for impact resistance (see 5.10 of EN 12975-2) shall be carried out if requested. The result shall be recorded.

NOTE Regarding the durability and reliability of elastic materials refer to ISO 9808:1990 Solar water heaters-Elastomeric materials for absorbers, connecting pipes and fittings-Method of assessment and ISO 9553:1997 Solar energy-Methods of testing preformed rubber seals and sealing compounds used in collectors

5.3 PASS CRITERIA

5.3.1 *General*

The pass criteria for the reliability tests are given for each test in 5.3.2 to 5.3.10. The term "no major failure", denotes that none of the following occurs:

- Absorber leakage or such deformation that permanent contact between absorber and cover is established;
- Breaking or permanent deformation of cover or cover fixing;
- Breaking or permanent deformation of collector fixing points or collector box;
- Vacuum loss, such that vacuum or subatmospheric collectors may no more be classified as such, according to the definition in EN ISO 9488 (only applicable for vacuum and subatmospheric collectors);
- Accumulation of humidity in form of condensate on the inside of the transparent cover of the collector exceeding 10% of the aperture area.

NOTE The evaluation of accumulation of humidity for application of the pass criteria shall be applied only on the following tests
- external Thermal Shock
- Rain Penetration Test

5.3.2 ***Internal pressure for absorber***
The test pressure shall be as specified in 5.2 of EN 12975-2. In the case of absorbers made of organic materials, climate conditions according to Table 2 of EN 12975-2 shall be applied. After the internal pressure test, the collector shall not show any major failure as defined in 5.3.1.

5.3.3 ***High temperature resistance***
When tested in accordance with 5.3 of EN12975-2, the collector shall not show any major failure as defined in 5.3.1.

5.3.4 ***Exposure***
When tested in accordance with 5.4 of EN 12975-2, the collector shall not show any major failure according to 5.3.1 and none of each potential problems of their components shall be graded 2 on the scale given in B.5.5 of EN 12975-2.

5.3.5 ***External thermal shock***
When tested in accordance with 5.5 of EN 12975-2, the collector shall not show any major failure as defined in 5.3.1.

5.3.6 ***Internal thermal shock***
When tested in accordance with 5.6 of EN 12975-2, the collector shall not show any major failure as defined in 5.3.1.

5.3.7 ***Rain penetration***

NOTE This test is applicable only for glazed collectors.

When tested in accordance with 5.7 of EN 12975-2, the collector shall not show any major failure as defined in 5.3.1. A visual check shall not show any water trace. Moreover, at least one of the following shall be fulfilled:

a) by weighing the collector the determined water quantity shall be less than 30 g/m² or

b) by measuring the humidity inside the collector, any visible droplets inside the collector or humidity that exceeds 20 g/kg at any time during the test or humidity that doubles from the value measured after stabilisation shall yields to “major failure” or

c) the measured condensation level shall be less than 10 % of the transparent cover and the quantity of the water that come out of the collector when tipping it shall be less than 30 g/m².

5.3.8 ***Mechanical load test***
When tested in accordance with 5.9 of EN 12975-2 the cover, the collector box and the fixings between collector box and mounting system shall not show any major failure as defined in 5.3.1 and 5.9.1.3 EN12975-2. The permissible and the maximum positive and negative pressure shall be recorded in the installer manual.

NOTE Individual country’s safety requirements may prevail.

5.3.9 ***Thermal performance***
When tested in accordance with 6 of EN12975-2, the collector shall not show any major failure as defined in 5.3.1. Thermal performance shall be reported.

5.3.10 ***Freeze resistance test***
This test shall be carried out only in the cases specified in 5.8.1 of EN 12975-2. The pass criterion is no major failure as defined in 5.3.1 after three freeze-thaw cycles.

5.4 PROCEDURE

The required number of collectors shall be available for testing. The collectors shall be tested in accordance with 5.2. The collectors conform to this standard, only if all pass criteria are fulfilled.

Freeze resistance shall be tested, for collectors which the manufacturer claims can withstand freezing and freeze/thaw cycling and which are not intended to be filled with antifreeze fluids.

5.5 Fire characteristic

5.5.1 ***Reaction to fire***
If necessary the materials used in solar collectors shall be tested and classified in accordance with EN 13501-1.

5.5.2 ***External fire performance***
If necessary in roof collectors shall be tested and classified in accordance with EN 13501-5.

5.6 Weather tightness (in roof and in façade collectors only)

In case of an in-roof or in-façade installation of the collector a test sample composed of collector, roof (façade) segment and mounting kit shall be subject to the test according to 5.3.7 or EN 1027.
A visual check shall not show any water ingress caused by the mounting kit.

6 SAFETY

The maximum fluid temperature to be considered in the design of a solar collector or solar plant is the collector stagnation temperature. Materials to be used in the manufacture of collectors or installations incorporating the collector (expansion tanks, safety valves, etc.) shall be chosen taking into account this temperature.

The stagnation temperature shall be calculated in accordance with equation C.1 of EN 12975-2 under the following climate parameters:

- Hemispherical irradiance on collector plane 1000 W/m²;

- Surrounding air temperature 30 ºC.

Stagnation temperature (see Annex C EN 12975-2) may be combined with the high temperature resistance or exposure test.

The collector shall provide for safe installation and mounting. Sharp edges, loose connections and other potentially dangerous features shall be avoided. If the weight of the empty collector exceeds 60 kg, an anchorage for a lifting device shall be included, except for the collectors that are assembled on the roof. Collectors filled with a heat transfer fluid irritant to human skin or eyes, or toxic shall carry a warning label.

7 COLLECTOR IDENTIFICATION

7.1 DRAWINGS AND DATA SHEET

The collector submitted for test shall be accompanied by a set of drawings describing the collector's dimensions and structure along with a list of materials used in the collector and important physical and optical properties as well as by the solar collector description in D.2 or F.2 of EN 12975-2. Drawings shall have a number, date of issue and possible revision date. These documents shall be filed by the test institute for at least the period of time, that the collector type is traded by the manufacturer.

NOTE The manufacturer is usually obliged to keep these drawings for at least the period of time, that the warranty of the collector type is valid.

7.2 LABELING

Collectors shall carry a visible and durable label with the following data:

- Name of manufacturer;
- Type;
- Serial number;
- Year of production;
- Gross area of collector;
- Dimensions of collector
- Maximum operation pressure;
- Stagnation temperature at 1000 W/m^2 and 30 ºC;
- Volume of heat transfer fluid;
- Weight of empty collector; Made in:.....

7.3 INSTALLER INSTRUCTION MANUAL

Solar collectors shall be accompanied by an installer instruction manual, if traded as stand-alone components. When they are part of a complete system, the system installation manual can cover the complete system. In that case no separate manual for the collector shall be required. The instruction manual shall at least contain the following information:

- dimensions and weight of the collector, instructions about the transport and handling of the collector;
- description of the mounting procedure;
- recommendations about lightning protection;
- instructions about the coupling of the collectors to one another and the connection of the collector field to the heat transfer circuit, including dimensions of pipe connections for collector arrays up to 20 m²;
- recommendations about the heat transfer media which may be used (also with respect to corrosion) and precautions to be taken during filling, operation and service;
- the maximum operation pressure, the pressure drop and the maximum and minimum tilt angle;
- permissible wind and snow load
- maintenance requirements.

If the collector is traded as a component and sold directly to customers, all relevant documentation concerning personal safety, maintenance and handling of the product shall be made available to the customer in the national language of which country is sold.

ANNEX A (INFORMATIVE)
DESCRIPTION OF SOLAR COLLECTORS MATERIALS AND MANUFACTURE

A.1 GENERAL

The operational ability and long lifetime of solar collectors depend on the correct choice of appropriate materials. Testing of the materials, including accelerated life testing, is very important for the development of new collectors and the prediction of service life. Respective literature is referred to in Annex D.

Solar collectors may be affected by airborne fire or radiant heat. The use of non-combustible materials should be preferred. Collectors should comply with the European regulations to fire-classification.

The collector box should be water-tight to prevent penetration of rain water. The collector box should be constructed in such a way, that condensed water does not accumulate in the collector, as this might impair its functional capability and durability. For that purpose the collector should be properly designed to enable ventilation of air through the collector box.

The construction of the collector should ensure that no undue stress is built up in the cover, even at the maximum stagnation temperature of the collector. The materials of collector components should be selected and constructed so, that they can withstand the maximum temperature which may occur at stagnation conditions and the thermal shocks they may exposed to during the summer period. The materials of the collector should preferably be resistant to exposure to UV-radiation and in cases where materials selected are not so, they should be protected against incident and reflected UV-radiation.

Bushings and ducts, leading through the box, should be constructed so that no leakage can occur caused by thermal expansion. The collector box bushings should withstand any damage, if they have to be soldered for assembly. The design of collector should be such, that heat bridges between the collector box and the absorber are avoided.

The components and the materials of the collector should be able to withstand the mechanical loads resulting from the heating up and cooling down of the collector. They should also be resistant to environmental stress from outdoor climate caused by factors such as rain, snow, hail, wind, high humidity and air pollutants.

A.2 ABSORBERS

Absorbers should be made from suitable materials to cope with mechanical, thermal and chemical requirements of the application. The effect of the manufacturing processes like cutting, brazing, soldering etc., on the properties of the absorber, should be considered.

The absorber ducts which guide the flow of the heat transfer fluid, including the connection lines, should be designed and constructed in such a way that venting can be effected in the installed condition, thus ensuring the functional capability of the collector.

Absorbers should be dimensioned on the basis of a calculation pressure corresponding to the permissible working overpressure specified by the manufacturer taking into consideration a safety factor of 1,5. The properties of the heat transfer medium should be considered as well.

The effect of the maximum temperature (stagnation temperature) of the absorber should be considered in the selection of material.

In the case of materials with strength characteristics, which vary appreciably with the temperature and/or UV-exposure, the evaluation criteria should be determined individually in each case.

The wetted side of the absorber should withstand corrosion under normal operating conditions and taking into account the admixture of possible additives to the heat transfer fluid. The walls of swimming pool collectors which are wetted by the swimming pool water should be resistant to the additives used for the treatment of the swimming pool water.

Absorber coatings should retain their optical properties under high temperature, high humidity and condensation, and sulfur dioxide at high humidity.

A.3 TRANSPARENT COVERS

Solar collectors are generally covered with glass or transparent plastic glazing. The durability of glass and tempered glass under the service conditions found in solar collectors is good, but the resistance of plastics and glass treated with a special coating to the combined effects of UV radiation and temperature may be poor. There may be significant degradation with time, and in the case of a reduced transmission in the solar wavelengths, this will lead to degradation in collector performance. A reduction in the tensile strength or impact strength of a cover material may lead to a failure of the collector cover.

The transparency of the covers should not deteriorate appreciably during the service life of the collector, the covers should be resistant to ultraviolet (UV) radiation, air pollution, high humidity and condensate as well as high temperatures depending on the collector design.

A.4 INSULATION MATERIALS

Insulation materials should withstand the local temperature arising during stagnation temperature conditions of the collector. At this temperature no melting, shrinkage or outgasing of the insulation with consequent condensation inside the collector cover, or absorber performance reduction or corrosion of metallic surfaces should occur to the extent of seriously reducing the collector performance.

Water or humidity absorption by the insulation material may shortly or permanently reduce the insulation performance of the material.

Thermal expansion of the material used in the collector due to the wide range of temperatures should be taken into consideration because of different thermal expansion coefficients. Furthermore transparent insulation materials or teflon layers used, should not deteriorate appreciably, both mechanically and optically, during the service life of the collector due to ultraviolet (UV) radiation, high temperature and humidity.

A.5 REFLECTORS

Reflectors, diffuse or specular, are reflecting surfaces used to increase the radiation, incident on the absorber. The reflecting surface should be resistant to environmental influences such as air pollution and to corrosion through humidity or rain. Outside the collector box reflectors should

resist also mechanical loads through wind, snow and hail, whereas inside reflectors should withstand high temperatures.

A.6 DIFFUSION BARRIERS

Diffusion barriers are materials used between absorbers and insulation material to prevent diffusion into or out of the insulation material. They should be able to withstand the absorber high temperatures and the incident UV radiation without shrinking and the high humidity or condensate accumulated remaining tight.

ANNEX B (INFORMATIVE)
ENVIRONMENTAL PROTECTION

B.1 HEAT TRANSFER FLUID

The heat transfer fluid used should not be toxic, seriously irritant to the human skin or eyes, or water polluting and it should be fully biodegradable.

B.2 INSULATION MATERIALS

For the collector insulation no materials should be used, which have been manufactured using or containing CFCs. Furthermore, the insulation materials should not contain components, which outgas at the stagnation temperature, specified in clause 6, which are toxic and seriously irritant to the human skin or eyes.

B.3 RECYCLING OF THE COLLECTOR MATERIALS

Solar collectors are mainly used to save energy and reduce pollution. Therefore the design of the collectors should take into consideration the possibility to recycle the materials used. Materials which are not to be recycled should be avoided or used to the lowest possible extent.

NOTE Information on the classification and identification of toxic substances can be found e.g. in the Directives 67/548/EEC (classification, packaging, labeling of dangerous substances) and 76/769/EEC (restriction on the use of dangerous substances) and amendments.

ANNEX C (INFORMATIVE)
TESTS TO BE REPEATED IN COLLECTOR DESIGN MODIFICATIONS

If the collector design is changed, table C.1 may be used as guideline to assess whether one or more tests should be repeated.

Table C.1 - Tests that should be repeated for the respective modification in the collector design

	Absorbers	Covers	Insulation materials	Boxes	Reflectors	Diffusion barriers
Therm. performance	+	+	+	+	+	+
Internal pressure	+	-	-	-	-	-
High temp. resistance	+	+	+	+	+	+
Exposure	+	+	+	+	+	+
External therm. shock	-	+	-	+	+	-
Internal therm. shock	+	-	-	-	-	-
Rain penetration	-	+	-	+	-	-
Mechanical tests	-	+	-	+	-	-
Final inspection	+	+	+	+	+	+
+ Test should be repeated - Test need not be repeated						

ANNEX ZA
(INFORMATIVE)
CLAUSES OF THIS EUROPEAN STANDARD ADDRESSING THE PROVISIONS OF THE EU CONSTRUCTION PRODUCTS DIRECTIVE

ZA.1 Scope and relevant characteristics

Parts of this European Standard have been prepared under Mandate M/129[1)] "Space heating appliances" given to CEN by the European Commission and the European Free Trade Association.
The clauses of this European Standard shown in this annex meet the requirements of the mandate given under the EU Construction Products Directive (89/106/EEC).
Compliance with these clauses confers a presumption of fitness of the construction products covered by this annex for the intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

> **WARNING:** Other requirements and other EU Directives, not affecting the fitness for intended uses, can be applicable to the construction products falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through http://ec.europa.eu/enterprise/construction/internal/dangsub/dangmain.htm).

This annex has the same scope as Clause 1 of this standard with regard to the products covered. It establishes the conditions for the CE marking of solar collectors intended for the use indicated below and shows the relevant clauses applicable (see Table ZA.1).
Construction Product: solar collectors
Intended use: in buildings

[1)] including amendment M/369

Table ZA.1 — Relevant clauses

Essential Characteristics	Requirement clauses in this and other European Standards	Levels and/or classes	Notes
Mechanical resistance to climatic loads (wind, snow, …)	EN 12975-1, 5.3.8	-	-
Fire safety (e.g. initiation, reaction to fire, risk to adjacent elements, …, as relevant)	EN 12975-1, 5.5	-	-
Weather tightness (when relevant - i.e. for roof integrated or façade integrated collectors)	EN 12975-1, 5.6	-	-

The requirement on a certain characteristic is not applicable in those Member States (MSs) where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products on the market of these MSs are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option "No performance determined" (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Procedure for attestation of conformity of solar collectors

ZA.2.1 System of attestation of conformity

The system of attestation of conformity of the solar collectors, in accordance with the decision of the Commission as given in Annex III of the mandate for "Space heating appliances", is shown in Table ZA.2 for the indicated intended use and relevant level or class.

Table ZA.2 — System of attestation of conformity

Product	Intended use	Level or class	Attestation of conformity system
energy capturing appliances, solar collectors	in buildings	-	3
System 3: See Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility.			

The attestation of conformity of solar collectors shall be according to the evaluation of conformity procedures indicated in Table ZA.3 resulting from application of the clauses of this or other European Standards indicated therein.

Table ZA.3 — Assignment of evaluation of conformity tasks for solar collectors under system 3

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks under the responsibility of the manufacturer	Factory production control (FPC)	Parameters related to all characteristics of Table ZA.1 relevant for the intended use	-
	Initial type testing by a notified test laboratory	Mechanical resistance to climatic loads (wind, snow, …)	-
		Fire safety (e.g. initiation, reaction to fire, risk to adjacent elements, …, as relevant)	-
		Weather tightness (when relevant - i.e. for roof integrated or façade integrated collectors)	-

ZA.2.2 EC Certificate and Declaration of conformity

When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall draw up and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production,

NOTE 1 The manufacturer may also be the person responsible for placing the product onto the EEA market, if he takes responsibility for CE marking.

— description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking,

— provisions to which the product conforms (i.e. Annex ZA of this EN),

— particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions),

— name and address of the notified laboratory(ies),

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

NOTE 2 Where some of the information required for the Declaration is already given in the CE marking information, it does not need to be repeated.

The above mentioned declaration and certificate shall be presented in the language or languages accepted in the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC and shall be shown on the solar collector (or when not possible it may be on the accompanying label, the packaging or on the accompanying commercial documents e.g. a delivery note). The following information shall accompany the CE marking symbol:

- name or identifying mark and registered address of the manufacturer (see Note 1 in ZA.2.2),
- the last two digits of the year in which the marking is affixed,
- reference to this European Standard,
- description of the product: generic name, material, dimensions, … and intended use,
- information on those relevant essential characteristics listed in Table ZA.1 which are to be declared presented as:
  - declared values and, where relevant, level or class (including "pass" for pass/fail requirements, where necessary) to declare for each essential characteristic as indicated in "Notes" in Table ZA.1,
  - "No performance determined" for characteristics where this is relevant,
  - as an alternative, a standard designation which shows some or all of the relevant characteristics (where the designation covers only some characteristics, it will need to be supplemented with declared values for other characteristics as above).

The "No performance determined" (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination.
Figure ZA.1 gives an example of the information to be given on the product, label, packaging and/or commercial documents.

CE	*CE conformity marking, consisting of the "CE"-symbol given in Directive 93/68/EEC.*
AnyCo Ltd, PO Box 21, B-1050 **06**	*Name or identifying mark and registered address of the producer* *Last two digits of the year in which the marking was affixed*
EN 12975–1:20XX solar collectors, intended to be used in buildings **positive load: Class A** **Negative load: Class A** **Fire resistance: Class A1**	*No. of European Standard* *Description of product* *Information on regulated characteristics*

Weather tightness: pass

Figure ZA.1 — Example CE marking information

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE 1 European legislation without national derogations need not be mentioned.

NOTE 2 Affixing the CE marking symbol means, if a product is subject to more than one directive, that it complies with all applicable directives.

ANNEX D (INFORMATIVE)
BIBLIOGRAPHY

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